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ABSTRACT

Speed of access is a prime factor in user satisfaction with academic libraries. Specialized (i.e., departmental) libraries have proliferated to provide faster access. This study timed a sample of 933 citations, drawn from items cited in publications of members of each academic unit within the university. The hypothesis that the optimum size for a specialized collection is between 30,000 to 50,000 volumes was not proved by the results. The significant result of the study is the demonstration that approximately 50% of the time in all libraries but the central collection access time was less than three minutes and approximately 45% less than two minutes. With such a large number of very fast accesses, library policies should be adjusted accordingly. Procedures which increase or decrease each access by but a half minute significantly affect the time. Travel time to the library in better than half the cases where such a speed of access obtains may be the most significant patron expense. Further research into other factors which may affect speed of access; e.g., shelving arrangement, catalog arrangement, and placement, is recommended. (Author/JPF)

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FINAL REPORT
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OPTIMUM SPEED OF LIBRARY ACCESS AS RELATED TO OPTIMUM SIZE OF LIBRARY COLLECTIONS

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Preface

The author wishes to acknowledge the assistance of Mr. Richard Hill, The Ohio State University Research Foundation, in the preparation and carrying out of this research. Mr. Robert Zahller who served as chief assistant to the author was most valuable and carried much of the burden. Thanks are due to the many librarians whose schedules were interrupted when the timing was performed, but who never complained.

Summary

Speed of access is a prime factor in user satisfaction with academic libraries. Specialized libraries have proliferated to provide faster access. This study timed a sampling of citations, drawn from items referred to in publications of members of each academic unit within the university. The hypothesis that the optimum size for a specialized collection is between 30,000 and 50,000 volumes was not proved by the results. The significant result of the study is the demonstration that approximately 50% of the times in all libraries but the central collection were less than 3 minutes and approximately 45% less than 2 minutes. With such a large number of very fast accesses library policies should be adjusted accordingly. Procedures which increase or decrease each access by but a half minute significantly affect the time. Travel time to the library in the better than half the cases where such a high speed of access obtains may be the most significant patron expense. Further research into other factors which may affect speed of access - shelving arrangement, catalog arrangement and placement - is recommended.

Introduction

In the past few years the evaluation of libraries has been shifting to some extent from an emphasis on collections alone to a concern with the total services of a library. The realization that the recorded contents of a library do not reflect the ability to use such resources has led to various attempts to formulate measures of library service other than the intrinsic quality and quantity of the collection. This study is one such attempt.

Many, if not most, of the attempts to evaluate library services rely either on subjective judgments of those doing the evaluation or on user interviewing - a most subjective and probably inaccurate approach. Without objective standards it is impossible to test the "feelings" of the evaluator or those of the patrons. Since most patrons of academic libraries have had little experience, outside their home public libraries, with other libraries, their responses are not likely to accurately reflect the quality of service.

It is surprising and often dismaying that the basic data about library service is so sparce - after all, libraries have been in existence for some three millennia. We have only within the last five

years made some attempts to arrive at the quantitative criteria for the size of university library collections and we have had at least estimates of the size of various university libraries for hundreds of years. But except for financial and personnel statistics we have almost no data concerning other facets of library service. This investigation is an attempt to provide the beginnings for one facet of library service.

The time element in the provision of library service has been virtually ignored and yet we know, or at least sense, that much of the dissatisfaction (and satisfaction) stems from the time it takes for a patron to actually put his hand on the book or journal he wants.

Branch, departmental, and specialized libraries have sprung up on almost every university campus. Many have had the explicit objective of providing faster access. Such increased speed of access is implied in most of the others. Specialized libraries have been familiar to the American university scene almost from the beginnings, but we do not know whether faster access has in fact resulted; nor what size library is fastest.

One of the phenomena easily observed is that when specialized libraries exist some patrons must go to more than one library to satisfy their library demands and therefore access for these people may be slower.

The proponents of specialized collections contend that while a few are treated poorly, the majority of the users will have significantly better service. The assumption being that the majority of users within a discipline will have all or almost all of their needs met by a relatively small collection.

The question also can be stated in terms of how large can a collection grow before it reaches a "critical mass" where it is so large that the advantages over a large control library are lost. If a collection is too small, a scholar will have to go to another library for his material; if too large, supposedly he will encounter delays in access. It was hypothesized that the optimum size for a specialized library is 30,000 to 50,000 volumes. Further, it was realized that certain disciplines may require collections smaller or larger to optimize speed and if possible determination of such would be made.

Methods

The Ohio State University Libraries were used as the basis for data gathering. The system has over 2,000,000 volumes and has 22 department and specialized libraries with collections ranging slightly over 4,000 volumes to over 94,000 volumes as well as a "main" library containing over 1,300,000 volumes. Thus, enough specialized collections exist to gather data and the configuration is typical enough for generalizations to be drawn from the results.

The first problem to be faced when attempting to sample speed was which items to time. It was decided to time the access to a random sampling of items cited in the publications of the faculty. The assumption being that such represented the most accurate reflection of what a library should provide as well as what was provided. Any item not owned by the libraries was assumed to be available through interlibrary loan. (As it turned out, the number unavailable in the system was approximately 18%). The University keeps files of Personnel Data Records for each faculty member, one item of which is a bibliography of publications. In addition, most departments keep a yearly record of faculty publications. The departmental bibliographies for the academic year 1967-68 were used as a base and were supplemented by the Personnel Data Form bibliographies when the departmental bibliographies were not available. A random sample of publications was taken and from these a random sample of 10 citations per department, school or college (if no subunits existed within the college) were drawn. Nine hundred and thirty items were eventually timed and analyzed.

Three graduate students were employed and trained using citations drawn from Ph. D. dissertations submitted to the various departments during the academic year 1967-68.

Not only would such train the students in library use and the techniques of timing using stop-watches, but by sampling the dissertations for citations and timing these it was believed that any problems or anomalies in method would show up. The training and timing of the citations from the dissertations were finished without serious problems. We did not formally compare the results, but it is the impression of the investigator and the graduate students who did the timing that the results from the timing of the citations drawn from the dissertations were parallel to and confirmed by the results of the timing of the citations drawn from the faculty publications. However, this experience did point up the need for a table of standard travel times between libraries and such was prepared. The travel of each student (two males, one female) between each library on a standard walk was timed and an average ascertained although very little difference occurred.

After selection, the bibliographic details of each citation to be timed was transcribed onto timing forms. The students timed each during less busy periods of library use. Most were timed between quarters when classes were not in session. The timing began at the door of the library which was expected to serve the faculty member from whose publication the citation had been drawn. Timing included searching the catalog or periodical list (if the bound periodicals were not arranged in alphabetical order separately) and stopped when the searcher placed his hand on the item. If the item was not in that library, timing continued, using the standard travel time table where appropriate, while the student searched the union card catalog at the main library and continued until the searcher placed his hand on the item wherever on the campus the item might be located.

The attempt was of course to replicate as far as appropriate the actions of a user.

Thus, for each item the following data were ascertained: the library where timing started, the library where timing ended, the search, travel and total times as well as the department of the author of publication from which the citation was drawn, and whether the item was a monograph, journal, government document, dissertation, newspaper, or other. Timing was done with stop-watches to hundredths of a minute. All times are given in hundredths of minutes not in minutes and seconds. The times were coded in the following arbitrary scale:

0	-	5 minutes	=	5
5.1	-	10 minutes	=	4
10.1	-	20 minutes	=	3
20.1	-	30 minutes	=	2
30.1	-	60 minutes	=	1
1	-	24 hours	=	0
1	-	3 days	=	-1
Over 3 days			=	-2

It was believed that the scale would provide a timing for items not found in the libraries' collections since any such would be assumed to be provided through interlibrary loan and thus incur a score of -2. It was also believed that such a scoring system would provide a somewhat simpler distinction between the various libraries. After the timing was finished, however, it became obvious that the scale is less helpful for this second purpose since so many of the times were less than 5 minutes and none (except those not found in the collection) received a score of 0 or less and only one received a score of one.

Results

The primary hypothesis - that the fastest speed of access occurs in libraries of from 30,000 to 50,000 volumes, that libraries below such size will, in general, require too much travel time or will fail to hold enough volumes to satisfy needs, that larger libraries will by their sheer size be slower - was not demonstrated. In fact, the four libraries of the 21 falling within the 30,000 to 50,000 volume range had two of the highest as well as two of the lowest times and scores of all. One library, Journalism, the smallest, but one of the libraries with 4,021 volumes had to be eliminated since so few citations were available for timing. Tables showing all of the times and scores are included as Tables A and B.

The most surprising results were that of the items found in the collections - 56% were timed in less than 3 minutes and 50% were timed in less than 2 minutes. If the total citations were included then the percentages were 45% in less than 3 minutes and 40% in less than 2 minutes. Eighteen percent of the total citations were not found in the collections. The implications from such startlingly high speeds of access (low times) are profound. The main library was the only exception to these percentages. The percentages were significantly uneven there.

Conclusions

While it is clear that size of library does not seem to be the significant factor affecting speed of access nevertheless speed of access remains one of the most important factors in library service.

The implications which can be drawn from the very high number of very low times should affect library administrative decisions.

When a patron in over half the attempts can expect to retrieve an item from the library in 2 or 3 minutes, or less, it is such a norm by which he judges each attempt.

When speed of access is so high for so many items it becomes clearer why so many patrons demand libraries be close to their offices or classrooms. If the time spent locating and returning items is less than 2 or 3 minutes then the time spent traveling to the library becomes very significant. If libraries are moved or consolidated in such a way as to add more travel time than time spent in actually retrieving items and advantages and services sufficient to outweigh such an important disadvantage are not provided, patron dissatisfaction is almost sure to increase.

When such high speed of access obtains, techniques and procedures such as shelving arrangements, card catalog placement and arrangement which would increase access by 20 or 30 seconds would increase such access by 10% to 20% - a significant change. Conversely, the implementation of policies which would decrease speed by the same 20 to 30 seconds could be a significant disservice.

With such speeds it is not at all surprising to find "open stack" libraries (wherein the patron retrieves his own material) greatly preferred over those wherein a library employee retrieves the material. The mere act of requesting a book may take almost as long as the whole process in an "open stack" situation.

With such high speeds under close to "ideal" conditions - these times were obtained when the libraries had few patrons, classes were not in session - good housekeeping, including quick and accurate reshelving of used items, becomes very important.

Recommendations

Since size does not seem to be the significant factor in speed of access and since libraries of approximately the same size show radically differing speeds of access, further studies should be conducted to try to isolate which factors are significant. Among those suggested are shelving arrangement, layout of the bookstack in relation to the card catalog, and catalog arrangement. Since the speeds so often were so low further research into total time spent in library activity might prove very profitable, especially research into travel time as related to patron satisfaction.

TABLE A

Average Times (in Minutes)

Library	Size (1968/69)	Search	Travel[1]	Total[2]
Main	1,356,246	2.54	2.95	4.54
Education	94,841	1.89	7.36	2.46
Health Center	83,232	1.10	5.66	2.37
Commerce	76,472	2.02	8.24	6.28
Botany & Zoology	55,484	1.89	9.68	10.38
Geology	37,287	2.84	4.38	6.90
Music	37,125	2.62	6.62	8.47
Chemistry	32,240	1.13	6.76	3.89
Aero-Civil Eng.	32,044	2.35	12.08	9.08
Physics	28,758	1.42	8.00	1.89
Agriculture	25,092	1.63	21.18	10.09
Vet. Medicine	22,509	0.88	29.35	4.48
Social Work	19,276	1.40	8.10	5.60
Materials Eng.	16,992	1.84	11.26	6.42
Mathematics	16,844	1.77	12.50	8.02
Electrical Eng.	16,643	1.89	9.73	11.17
Architecture	13,045	1.29	5.34	5.39
Pharmacy	11,218	1.53	27.31	16.31
Davis Welding	7,626	1.68	12.00	7.20
Home Economics	6,266	1.96	11.05	7.55
Optometry	2,137	1.61	13.54	11.06

[1] includes only those citations where travel was involved.

[2] includes only items found in the collections.

TABLE B

Library	Size (1968/69)	Average Total Time[1]	Composite Score[2]
Main	1,356,246	4.54	3.58
Education	94,841	2.46	4.20
Health Center	83,232	2.37	3.86
Commerce	76,472	6.28	3.05
Botany & Zoology	55,484	10.38	2.97
Geology	37,287	6.90	3.30
Music	37,125	8.47	1.40
Chemistry	32,240	3.89	4.65
Aero-Civil Eng.	32,044	9.08	1.70
Physics	28,758	1.89	3.90
Agriculture	25,092	10.09	2.50
Vet. Medicine	22,509	4.48	3.74
Social Work	19,276	5.60	2.36
Materials Eng.	16,992	6.42	2.51
Mathematics	16,844	8.02	4.10
Electrical Eng.	16,643	11.17	2.15
Architecture	13,045	5.39	3.27
Pharmacy	11,218	16.31	2.60
Davis Welding	7,626	7.20	3.50
Home Economics	6,266	7.55	2.80
Optometry	2,137	11.06	2.60

[1]includes only items found in the collections.

[2]includes all items,"5" indicates 0-5 minutes, "1" indicates 30-60 minutes.